IN THE UNITED STATES DISTRICT COURT
FOR THE WESTERN DISTRICT OF TEXAS
WACO DIVISION

WSOU INVESTMENTS, LLC d/b/a BRAZOS LICENSING AND DEVELOPMENT, Plaintiff, v. ZTE CORPORATION, ZTE (USA) INC., AND ZTE (TX), INC. Defendants.	§ § § § § § § § § § § § §	CIVIL ACTION NO. 6:20-cv-494-ADA **JURY TRIAL DEMANDED**

FIRST AMENDED COMPLAINT FOR PATENT INFRINGEMENT

Plaintiff WSOU Investments, LLC d/b/a Brazos Licensing and Development ("Brazos" or "Plaintiff"), by and through its attorneys, files this First Amended Complaint for Patent Infringement ("Complaint") against Defendants ZTE Corporation, ZTE (USA), Inc. and ZTE (TX), Inc. (collectively "ZTE" or "Defendants") and alleges:

NATURE OF THE ACTION

1. This is a civil action for patent infringement arising under the Patent Laws of the United States, 35 U.S.C. §§ 1, et seq., including §§ 271, 281, 284, and 285.

THE PARTIES

2. Brazos is a limited liability corporation organized and existing under the laws of Delaware, with its principal place of business at 605 Austin Ave, Ste 6, Waco, TX 76701.

3. On information and belief, Defendant Zhongxing Telecommunications Equipment (abbreviated as "ZTE") Corporation ("ZTE Corp.") is a Chinese corporation that does business in Texas, directly or through intermediaries, with a principal place of business at ZTE Plaza, Keji Road South, Hi-Tech Industrial Park, Nanshan District, Shenzhen China.

4. On information and belief, Defendant ZTE (USA) Inc. is a New Jersey corporation that does business in Texas, directly or through intermediaries, with a principal place of business in business in Richardson, Texas.

5. On information and belief, Defendant ZTE (TX) Inc. is a Texas corporation that does business in Texas, directly or through intermediaries, with a principal place of business in business in Austin, Texas.

6. All of the Defendants operate under and identify with the trade name "ZTE." Each of the Defendants may be referred to individually as a "ZTE Defendant" and, collectively, Defendants may be referred to below as "ZTE" or as the "ZTE Defendants."

JURISDICTION AND VENUE

7. This is an action for patent infringement which arises under the Patent Laws of the United States, in particular, 35 U.S.C. §§271, 281, 284, and 285.

8. This Court has jurisdiction over the subject matter of this action under 28 U.S.C. §§ 1331 and 1338(a).

9. This Court has specific and general personal jurisdiction over each ZTE Defendant pursuant to due process and/or the Texas Long Arm Statute, because each ZTE Defendant has committed acts giving rise to this action within Texas and within this judicial district. The Court's exercise of jurisdiction over each ZTE Defendant would not offend traditional notions of fair play and substantial justice because ZTE has established minimum contacts with the forum. For example, on information and belief, ZTE Defendants have committed acts of infringement in this judicial district, by among other things, selling and offering for sale products that infringe the asserted patent, directly or through intermediaries, as alleged herein.

10. Jurisdiction is also proper because ZTE Defendants place goods and/or services, including Accused Products, into the stream of commerce knowing they will end up in Texas. Indeed, ZTE Defendants take actions purposefully directed toward Texas to place goods and/or services into the stream of commerce here.

11. On information and belief, ZTE Corp. sells and/or licenses Accused Products directly to a company headquartered in Richardson, Texas—ZTE (USA) Inc.—and ships them to that company's headquarters in Richardson, Texas.

12. On Information and belief, ZTE Corp. targets other Texas customers through ZTE (USA) Inc.'s website and ships Accused Products to customers in Texas.

13. ZTE Corp. specifically targets Accused Products at individuals and companies in Texas at least by selling and/or licensing Accused Products directly to ZTE (USA) Inc., a consumer and distributor of Accused Products manufactured by ZTE Corp., and by shipping Accused Products to ZTE (USA) Inc. for distribution in Texas.

14. On information and belief, ZTE Corp. assists ZTE (USA) Inc. with troubleshooting or other technical support of ZTE Corp. equipment sold in the United States, including Texas.

15. Both ZTE Corp. and ZTE (USA) Inc. have issued releases from Richardson, Texas marketing ZTE products. These releases are hosted on ZTE Corp.'s website and include a "ZTE Corporation" copyright.

16. On November 20, 2019, ZTE (USA) Inc. issued a release from "RICHARDSON, Texas" advertising Black Friday Deals on several products, including Blade 10 and Axon 10 Pro. The release explains that "ZTE USA" is "headquartered in Richardson, Texas," provides information to directly contact ZTE (USA) Inc. and indicates that "shoppers can enjoy free

shipping and easy 30 day returns for ZTE products at www.zteusa.com. The release is hosted on ZTE Corp.'s website and includes a "ZTE Corporation" copyright.

17. On October 15, 2019, ZTE Corp. issued a release from "RICHARDSON, Texas" announcing that Blade Vantage 2 would be available in "Verizon stores across the U.S." and would "operate on Verizon's national network."

18. On information and belief, most imports from ZTE Corp. to the United States are shipments to ZTE (USA) Inc.

19. On information and belief, most imports received by ZTE (USA) Inc. are imports from ZTE Corp.

20. On information and belief, ZTE Corp. regularly ships goods to ZTE (USA) Inc.'s headquarters at 2425 N Central Expressway in Richardson, Texas.

21. On information and belief, ZTE Corp. regularly ships goods to other addresses in Texas.

22. Venue in the Western District of Texas is proper pursuant to 28 U.S.C. §§1391 and/or 1400(b). The ZTE Defendants have committed acts of infringement and have places of businesses in this District and/or are foreign entities for purpose of §1391. As non-limiting examples, ZTE (TX) has maintained a place of business at 7000 N MO-PAC EXPRESSWAY 200 AUSTIN, TX 7873; and, ZTE (USA) has maintained a place of business at 6500 River Place Blvd., Austin, TX 78730. ZTE Corporation also describes a "research-and-development center in Austin, Texas."[1]

[1] https://res-www.zte.com.cn/mediares/magazine/publication/tech_en/pdf/201009.pdf

COUNT ONE - INFRINGEMENT OF U.S. PATENT NO. 9,185,036

23. Brazos re-alleges and incorporates by reference the preceding paragraphs of this Complaint.

24. On November 10, 2015, the United States Patent and Trademark Office duly and legally issued U.S. Patent No. 9,185,036 ("the '036 Patent"), entitled "METHOD AND APPARATUS FOR FLOW CONTROL OF DATA IN A NETWORK." A true and correct copy of the '036 Patent is attached as Exhibit A to this Complaint.

25. Brazos is the owner of all rights, title, and interest in and to the '036 Patent, including the right to assert all causes of action arising under the '036 Patent and the right to any remedies for the infringement of the '036 Patent.

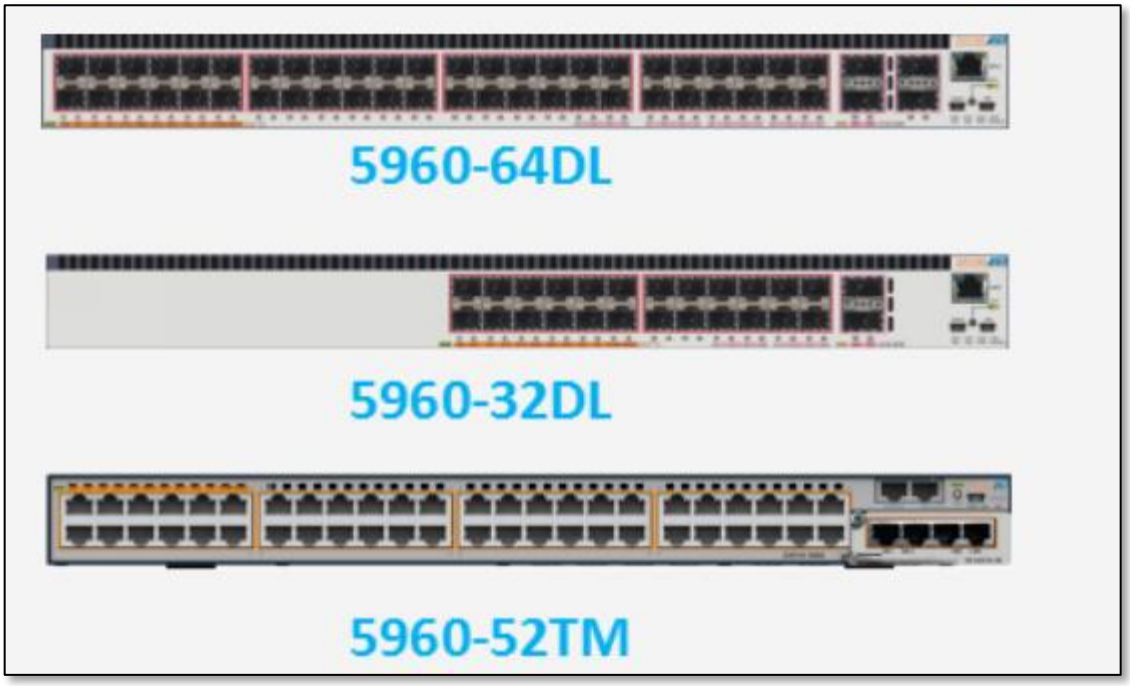
26. ZTE makes, uses, sells, offers for sale, imports, and/or distributes, in the United States, networking products including routing switches supporting the Quantized Congestion Notification (QCN) protocol (collectively, the "Accused Products").

27. The Accused Products include the ZXR10 5900 series routing switches, including the ZXR10 5960-32DL, 5960-64DL, and 5960-52TM, and the ZXR10 5960-H series routing switches, including the ZXR10 5960-4M-HC, 5960-32LC-H, 5960-64DL-H, 5960-72DL-H, 5960-72NL-H, and 5960-56QU-HC routing switches.

…

> The ZXR10 5960 Series switch is next-generation switch with high switching capacity and high port density for data center TOR and carrier access and aggregation scenario. It provides high density 10GE/40GE interfaces, carrier-class reliability and superior scalability. The ZXR10 5960 Series switch supports extensive data center service features such as VSC (Virtual Switch Cluster)/ TRILL (Transparent Interconnection of Lots of Links)/ Front-to-back Airflow and Ethernet ring protection for L2 Ethernet service. The ZXR10 5960 Series switch can work with the ZXR10 9900 Series switch to build an elastic, virtualized, high-quality switching network that meets the requirements of cloud-computing data centers.

…



https://www.zte.com.cn/global/products/bearer/data_communication/ethernet_switch/5960-EN;

> Support DCB (Data Center Bridging) protocol family and fully guarantee network reliability and no loss in full range. The ZXR10 5960 Series switch supports PFC (Priority-based Flow Control), QCN (Quantized Congestion Notification), ETS (Enhanced Transmission Selection), DCBX (Data Center Bridging Exchange), which ensure low latency and zero packet loss for high-speed computing services.

https://www.asit.it/wp-content/uploads/2018/04/zte_ZXR10_5960_serie.pdf (Page 4).

- Support DCB (Data Center Bridging) protocol family and fully guarantee network reliability and no loss in full range. The ZXR10 5960 Series switch supports PFC (Priority-based Flow Control), QCN (Quantized Congestion Notification), ETS (Enhanced Transmission Selection), DCBX (Data Center Bridging Exchange), which ensure low latency and zero packet loss for high-speed computing services.

https://www.zte.com.cn/global/products/bearer/data_communication/ethernet_switch/5960-EN.

28. ZXR10 5960 series and ZXR10 5960-H series switches implement the IEEE 802.1Q (Media Access Control (MAC) Bridges and Virtual Bridged Local Area Networks) standard (also referred to as IEEE 802.1q) for detection and control of a congestion condition in the network. IEEE 802.1Q includes the Quantized Congestion Notification protocol.

Function	The ZXR10 5960 Series Switch
L2 Features	Support IEEE 802.1p (COS), IEEE 802.1q (VLAN), IEEE 802.3x Support IEEE 802.1d (STP)/ 802.1w (RSTP)/ 802.1s (MSTP) Support IEEE 802.3ad (LACP) Support IEEE 802.3z (1000Base-X) / 802.3ab (1000BaseT) Support IEEE 802.3an (10GBase-T), IEEE 802.3ae (10Gbase) Support IEEE 802.3ba (40Gbase), IEEE 802.3ba (100Gbase) Support Port mirroring, Traffic mirroring Support VLAN switching, VLAN translation Support PVLAN, SuperVLAN Support GVRP Support LLDP

https://www.asit.it/wp-content/uploads/2018/04/zte_ZXR10_5960_serie.pdf, (Page 8).

Function	The ZXR10 5960-H Series Switch

…

L2 Features	Support IEEE 802.1p (COS), IEEE 802.1q (VLAN), IEEE 802.3x Support IEEE 802.1d (STP)/ 802.1w (RSTP)/ 802.1s (MSTP) Support IEEE 802.3ad (LACP)

https://sdnfv.zte.com.cn/upload_files/440ed336-3d3f-11e9-abd7-744aa4020e29.pdf (Page 11).

IEEE Std 802.1Q™-2011
(Revision of
IEEE Std 802.1Q-2005)

…

30.2 Quantized Congestion Notification protocol

This subclause provides an overview of the baseline simulation of the QCN algorithm (Alizadeh, et al.) [B1] used to develop this standard. This introduction provides no normative text. It will focus on the key features of the QCN algorithm, omitting the normative details given in the rest of this standard.

https://ieeexplore.ieee.org/document/6009146 (Page 1100).

29. The Accused Products monitor traffic flow in a network. When congestion is detected, a congestion notification is sent upstream to control the data flow causing the congestion condition.

Congestion notification comprises capabilities for detecting and mitigating queue congestion for selected classes of traffic in Virtual Bridged Local Area Networks. These capabilities can be used in networks with a bandwidth-delay product on the order of 5 Mbits or less in order to decrease the likelihood of frame loss for Congestion Controlled Flows (CCFs). As the geographical size, per-hop delay, and/or maximum hop count of a network grow, causing the bandwidth-delay product of the network to increase beyond this value, oscillations in buffer occupancy begin, and their amplitude increases gracefully with bandwidth-delay product. If the parameters controlling the algorithm are not adjusted accordingly and the sizes of the bridges' buffers are not increased, frames are then likely to be lost due to congestion.

https://ieeexplore.ieee.org/document/6009146 (Page 1098).

30. A Congestion Point (CP) Algorithm in the Accused Products samples frames. The Accused Products can send a Congestion Notification Message (CNM) upstream to the source of a frame. The CNM contains information about the extent of congestion at the CP.

30.2 Quantized Congestion Notification protocol

This subclause provides an overview of the baseline simulation of the QCN algorithm (Alizadeh, et al.) [B1] used to develop this standard. This introduction provides no normative text. It will focus on the key features of the QCN algorithm, omitting the normative details given in the rest of this standard.

…

The QCN algorithm is composed of the following two parts:

a) **Congestion Point (CP) Algorithm:** this is the mechanism by which a congested bridge or end station buffer samples outgoing frames and generates a feedback message (Congestion Notification Message or CNM, 33.3, in this standard) addressed to the source of the sampled frame. The feedback message contains information about the extent of congestion at the CP.

b) **Reaction Point (RP) Algorithm:** this is the mechanism by which a Rate Limiter (RL) associated with a source decreases its sending rate based on feedback received from the CP, and increases its rate *unilaterally* (without further feedback) to recover lost bandwidth and probe for extra available bandwidth.

https://ieeexplore.ieee.org/document/6009146 (Pages 1100-1101).

31. In the Accused Products, a CP can maintain buffer occupancy at a desired operating point. For congestion detection, a CP can compute a congestion measure (Fb) and send the congestion measure in the feedback message (CNM).

30.2.1 The CP Algorithm

A bridge containing a CP is modeled as an ideal output-queued bridge. The CP buffer is shown in Figure 30-1. The goal of the CP is to maintain the buffer occupancy at a desired operating point, Q_{eq}.[40] The CP computes a congestion measure F_b (defined below) and, with a probability depending on the severity of congestion, selects a frame from the incoming stream and sends the value of F_b in a feedback message to the source of the selected frame.

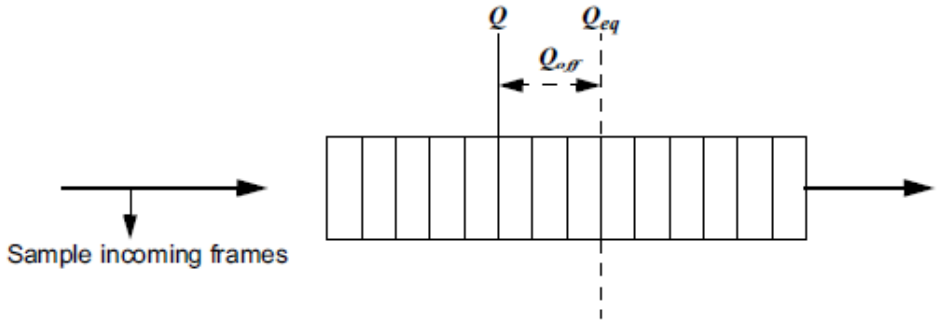


Figure 30-1—Congestion detection in QCN CP

https://ieeexplore.ieee.org/document/6009146 (Page 1101).

32. The CNM frame includes an Encapsulated Destination MAC address field that contains the destination MAC address of the frame that caused the congestion.

Table 33-5—Congestion Notification Message PDU

	Octet	Length
Version	1	4 bits
ReservedV	1, 2	6 bits
Quantized Feedback	2	6 bits
Congestion Point Identifier (CPID)	3	8
cnmQOffset	11	2
cnmQDelta	13	2
Encapsulated priority	15	2
Encapsulated destination MAC address	17	6
Encapsulated MSDU length	23	2
Encapsulated MSDU	25	0–64

https://ieeexplore.ieee.org/document/6009146 (Page 1142).

33. The Encapsulated destination MAC address contains the "destination_mac_address" parameter of the frame that caused the congestion and triggered the transmission of CNM.

33.4.8 Encapsulated destination MAC address

This field, 6 octets in length, contains the destination_mac_address parameter of the frame that triggered the transmission of this Congestion Notification Message.

https://ieeexplore.ieee.org/document/6009146.

34. In the Accused Products, the CNM notification is sent upstream to control the data flow causing the congestion. For example, a Reaction Point Algorithm associated with the

source can employ a Rate Limiter to adjust the flow of data based on received CNMs from a Congestion Point (CP).

> **30.2 Quantized Congestion Notification protocol**
>
> This subclause provides an overview of the baseline simulation of the QCN algorithm (Alizadeh, et al.) [B1] used to develop this standard. This introduction provides no normative text. It will focus on the key features of the QCN algorithm, omitting the normative details given in the rest of this standard.

…

> The QCN algorithm is composed of the following two parts:
>
> a) **Congestion Point (CP) Algorithm:** this is the mechanism by which a congested bridge or end station buffer samples outgoing frames and generates a feedback message (Congestion Notification Message or CNM, 33.3, in this standard) addressed to the source of the sampled frame. The feedback message contains information about the extent of congestion at the CP.
> b) **Reaction Point (RP) Algorithm:** this is the mechanism by which a Rate Limiter (RL) associated with a source decreases its sending rate based on feedback received from the CP, and increases its rate *unilaterally* (without further feedback) to recover lost bandwidth and probe for extra available bandwidth.

https://ieeexplore.ieee.org/document/6009146 (Pages 1100-1101).

35. In view of preceding paragraphs, each and every element of at least claim 12 of the ’036 Patent is found in the Accused Products.

36. ZTE has and continues to directly infringe at least one claim of the ’036 Patent, literally or under the doctrine of equivalents, by making, using, selling, offering for sale, importing, and/or distributing the Accused Products in the United States, including within this judicial district, without the authority of Brazos.

37. ZTE has received notice and actual or constructive knowledge of the ’036 Patent since at least the date of service of this Complaint.

38. Since at least the date of service of this Complaint, through its actions, ZTE has actively induced product makers, distributors, retailers, and/or end users of the Accused Products to infringe the ’036 Patent throughout the United States, including within this judicial district,

by, among other things, advertising and promoting the use of the Accused Products in various websites, including providing and disseminating product descriptions, operating manuals, and other instructions on how to implement and configure the Accused Products. Examples of such advertising, promoting, and/or instructing include the documents at:

- https://www.zte.com.cn/global/products/bearer/data_communication/ethernet_switch/5960-EN
- https://www.zte.com.cn/global/products/bearer/data_communication/ethernet_switch/5960-H-EN
- https://www.asit.it/wp-content/uploads/2018/04/zte_ZXR10_5960_serie.pdf
- https://sdnfv.zte.com.cn/upload_files/440ed336-3d3f-11e9-abd7-744aa4020e29.pdf

39. Since at least the date of service of this Complaint, through its actions, ZTE has contributed to the infringement of the '036 Patent by having others sell, offer for sale, or use the Accused Products throughout the United States, including within this judicial district, with knowledge that the Accused Products infringe the '036 Patent. The Accused Products are especially made or adapted for infringing the '036 Patent and have no substantial non-infringing use. For example, in view of the preceding paragraphs, the Accused Products contain functionality which is material to at least one claim of the '036 Patent.

JURY DEMAND

Brazos hereby demands a jury on all issues so triable.

REQUEST FOR RELIEF

WHEREFORE, Brazos respectfully requests that the Court:

(A) Enter judgment that ZTE infringes one or more claims of the '036 Patent literally and/or under the doctrine of equivalents;

(B) Enter judgment that ZTE has induced infringement and continues to induce infringement of one or more claims of the '036 Patent;

(C) Enter judgment that ZTE has contributed to and continues to contribute to the infringement of one or more claims of the '036 Patent;

(D) Award Brazos damages, to be paid by ZTE in an amount adequate to compensate Brazos for such damages, together with pre-judgment and post-judgment interest for the infringement by ZTE of the '036 Patent through the date such judgment is entered in accordance with 35 U.S.C. §284, and increase such award by up to three times the amount found or assessed in accordance with 35 U.S.C. §284;

(E) Declare this case exceptional pursuant to 35 U.S.C. §285; and

(F) Award Brazos its costs, disbursements, attorneys' fees, and such further and additional relief as is deemed appropriate by this Court.

Dated: November 6, 2020

Respectfully submitted,

/s/ James L. Etheridge

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